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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
| 10/820,855 | 04/09/2004 | Min-Lung Huang | HUAN3262/EM | 8687 |
| 23364 | 7590 | 01/29/2008 | EXAMINER | |
| BACON & THOMAS, PLLC 625 SLATERS LANE FOURTH FLOOR ALEXANDRIA, VA 22314 | | | KALAM, ABUL | |
| ART UNIT | PAPER NUMBER | | | |
| | | 2814 | | |
| MAIL DATE | DELIVERY MODE | | | |
| 01/29/2008 | PAPER | | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

**Advisory Action
Before the Filing of an Appeal Brief**

| | | |
|------------------------|---------------------|--|
| Application No. | Applicant(s) | |
| 10/820,855 | HUANG, MIN-LUNG | |
| Examiner | Art Unit | |
| ABUL KALAM | 2814 | |

-The MAILING DATE of this communication appears on the cover sheet with the correspondence address -

THE REPLY FILED 27 December 2007 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1. The reply was filed after a final rejection, but prior to or on the same day as filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:

a) The period for reply expires 4 months from the mailing date of the final rejection.
 b) The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.
 Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL

2. The Notice of Appeal was filed on _____. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

AMENDMENTS

3. The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will not be entered because
 (a) They raise new issues that would require further consideration and/or search (see NOTE below);
 (b) They raise the issue of new matter (see NOTE below);
 (c) They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
 (d) They present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: _____. (See 37 CFR 1.116 and 41.33(a)).

4. The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).

5. Applicant's reply has overcome the following rejection(s): _____.

6. Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).

7. For purposes of appeal, the proposed amendment(s): a) will not be entered, or b) will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

The status of the claim(s) is (or will be) as follows:

Claim(s) allowed: _____

Claim(s) objected to: _____

Claim(s) rejected: 1-4, 6 and 7

Claim(s) withdrawn from consideration: 8-12, 15-18 and 20-24.

AFFIDAVIT OR OTHER EVIDENCE

8. The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).

9. The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fail to provide a showing a good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).

10. The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

11. The request for reconsideration has been considered but does NOT place the application in condition for allowance because:
 See Continuation Sheet

12. Note the attached Information Disclosure Statement(s). (PTO/SB/08) Paper No(s). _____

13. Other: _____

/Phat X Cao/
Primary Examiner, Art Unit 2814

Continuation of 11. does NOT place the application in condition for allowance because: Applicant's arguments have been fully considered but are not persuasive.

The Applicant argues that the nickel-tin intermetallic forms only after soldering has commenced and that the intermetallic formed is not a barrier layer. The argument is not persuasive, because a broad interpretation of a barrier layer is any layer that is formed between two other layers. In claim 1, the barrier layer has been limited to being "disposed on the wetting layer" and comprising "tin and nickel." In Andricacos' final structure, the nickel layer and the nickel-tin intermetallic is formed between the solder layer and the copper layer (col. 5: lns. 26-31). Furthermore, note that the claim is drawn to a product and not a process, and therefore, since the final structure of Andricacos has a layer with the same composition (nickel and tin) as the barrier layer claimed by the Applicant, a prima facie case of either anticipation or obviousness has been established. Where the claimed and prior art products are identical or substantially identical in structure or composition, a prima facie case of either anticipation or obviousness has been established. In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977) and MPEP 2112.01.

Also note the limitations argued by the Applicant, such as when and how the barrier layer is formed, is not recited in the claim. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See In re Van Geuns, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). In conclusion, claim 1 recites "wherein a material of the second barrier comprises tin and nickel," and Andricacos clearly teaches a "barrier" comprising both a nickel layer and nickel-tin intermetallic formed between a solder layer and an underlying copper layer. Therefore, Andricacos has been shown to teach a second barrier layer comprising tin and nickel.

The Applicant also argues against the motivational statement of "it does not spall off or lose adhesion at the copper nickel interface," on the basis that there must be some positive benefit associated with the modification. The argument is not persuasive, because there is a positive benefit to the modification. In AAPA's structure, without a second barrier layer, the UBM structure may eventually lose adhesion at the copper nickel interface. However, a second barrier layer (interpreted as a layer including both nickel/nickel-tin) comprising nickel and tin, as taught by Andricacos, prevents the reaction of solder with underlying copper which prevents spall off (col. 5: lns. 28-31), and thus, the modification provides adhesion and reliability to the UMB structure.